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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/577,652

05/01/2006

Alex Rapoport

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7590

09/26/2011

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EXAMINER

LIPITZ, JEFFREY BRIAN

ART UNIT

PAPER NUMBER

3769

MAIL DATE

DELIVERY MODE

09/26/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/577,652	RAPOPORT, ALEX	
	Examiner	Art Unit	
	JEFFREY LIPITZ	3769	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 July 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1,3-7,9,10,15,16,19-21 and 23-31 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1,3-7,9,10,15,16,19-21 and 23-31 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Response to Arguments

Applicant's arguments/amendments filed July 5, 2011 with respect to the 112 rejections have been fully considered and are persuasive. These rejections have been withdrawn.

Applicant's arguments/amendments with respect to the prior art rejections have been considered but are moot in view of the new grounds of rejection.

Applicant asserts that Koziol does not teach that the beams converge towards a single volume in the depth of the eye. All of the figures illustrate the beams converging *towards* a volume beneath the surface. Applicant appears to be arguing that the beams don't actually meet at the volume beneath the surface. First, Applicant does NOT claim that they converge at a volume beneath the surface. The claim recites that the beams must converge *towards* that volume. Second, Koziol teaches that each of the peripheral reflectors focuses the beams at the surface OR onto an intrastromal area of the cornea. By definition, an intrastromal area is beneath the surface (Col. 9, Lines 34-38).

Applicant's arguments with respect to full lenticular ablation are not pertinent to the rejections. Koziol provides devices that are capable of full lenticular ablation as well as other methods. Examiner suggests focusing on embodiments cited that contain disclosure, which overlaps Applicant's claimed invention.

Applicant is correct that Examiner misinterpreted "convergence in one plane". This limitation was amended to recite that the reflective surface has a curvature in at

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most one plane, or in other words is a flat surface. The prior art rejections have been modified accordingly.

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The flat mirror of claim 31.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and 15 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The rigid connection between the second radiation directing element and the rotator is critical or essential to the practice of the invention, but is not included in the claims and is not otherwise enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). In instances in which there is a single reflective element recited, the rigid connection with the rotator and or beam divider is critical.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 16, Applicant recites a single reflective element when it is likely that the second radiation directing element is intended, so as to be consistent with the limitation of claim 3. For the purposes of prior art examination, Examiner has assumed this was the intended limitation. The scope of the claim is unclear, because it is unclear what the single reflective element refers to.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9, 10, 23-25, 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Azar et al. (7066929), hereinafter Azar in view of Chan (5378582).

Regarding claims 9, 23, 25 and 30, Azar teaches performing selective photothermolysis on subcutaneous tissues using a plurality of beams that have energy insufficient to cause damage at the surface, but overlap within the tissue to cause damage (Abstract). Thus, radiation at the surface is less than the maximum fluence of the radiation within the tissue. Azar teaches using radiation between 550- 800 nm (Col 6), which is within Applicant's claimed range.

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Azar clearly demonstrates Applicant's central concept of using a plurality of beams to affect a volume of tissue beneath the skin surface, but does NOT use the apparatuses recited in the claims. Attention is directed to Chan who teaches a laser or radiation source (13; Figure 4) that emits light that is divided up by a conical mirror (14; Figure 4) or prismatic lens (3; Figure 2). This divided up light is then reflected off of an annulus secondary mirror or reflective beam collector (16). The light beams are clearly illustrated as converging towards a volume within the target surface (17). The beam collector (16) is necessarily in rigid optical alignment with the beam divider, and will only reflect in one plane when the mirror (14). It would have been obvious to use the apparatus of Chan with the method and optical parameters of Azar because doing so would only require one laser/light source, rather multiple sources.

Regarding claims 10 and 24, Azar teaches that the incident radiation is not focused (Figures 1 and 2). Chan does not teach focusing the radiation with the embodiment of Figure 4. .

Regarding claim 28, the use of Chan's apparatus requires that the input fluence is less than the redirected radiation, since there are no elements with optical power and beam is necessarily split.

Claims 1, 3-7, 15, 16, 19-21, 26, 27 and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Azar in view of Libby (4413180).

Regarding claims 1, 4, 15 and 29, Azar teaches performing selective photothermolysis on subcutaneous tissues using a plurality of beams that have energy insufficient to cause damage at the surface, but overlap within the tissue to cause

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damage (Abstract). Thus, radiation at the surface is less than the maximum fluence of the radiation within the tissue. Azar teaches using radiation between 550- 800 nm (Col 6), which is within Applicant's claimed range.

Azar clearly demonstrates Applicant's central concept of using a plurality of beams to affect a volume of tissue beneath the skin surface, but does NOT use the apparatuses recited in the claims. Attention is directed to Libby teaches a light source (70; Figures 11 and 12) that emit light to a beam spreading assembly (90) comprising a fixed cylindrical reflector (94), or second radiation directing element, having a light reflecting surface and mirror (98) or first radiation directing element mounted to rotatable hollow shaft or rotator (102; Col. 5). The mirror is secured to the shaft via a mounting bracket (106). Both reflectors have curvatures in one plane. The radiation does not impinge a region along the central axis of the shaft (Figure 9).

Libby also teaches modifying the angle that the redirected beam takes from the second radiation directing reflector with respect to other embodiments (Col. 5-17; Figure 9). Although Libby does NOT appear to provide the means to control that angle in the embodiments discussed with respect to figures 11 and 12, it would have been obvious to a skilled artisan at the time the invention was made to provide means by which to change the angle of the reflecting surface (98) to increase/decrease the exit angle.

It would have been obvious to carry out the method of Azar with the apparatus of Libby because doing so would enable the method of Azar to be performed with a single light source, rather than multiple sources. Furthermore, Libby's apparatus is less susceptible to inaccuracies because only one mirror is angled with respect to fixed

optics, while even the simplest embodiment of Azar's device requires angling two sources, and because a single source will have a predictable optical output.

Regarding claims 3 and 16, Libby teaches that the second radiation directing element can be rigidly mounted to the rotator via spiders (108; Figure 12).

Regarding claim 6, Azar's method requires that the focal point of the redirected beams of Libby be beyond the target volume. After modification of Libby to enable the beams to converge, this limitation is inherent in the modified Libby apparatus.

Regarding claims 5 and 30, Libby uses a flat mirror (98) to reflect the light from the source. Therefore, the beam is necessarily split into smaller beams that contain less intensity than the input intensity.

Regarding claims 7 and 21, Azar teaches that the light incident on the skin is collimated by a collimating optic (82; Figure 6). Although Koziol does NOT provide such an optic for the redirected light, it would have been obvious to provide one because doing so would reduce the interference of light beams/pulses with other beams/pulse redirected from the same reflector. This reduction in interference would result in more predictable and reproducible results.

Regarding claims 19, 20, 26, and 27, Azar and Libby do NOT require the use of elements with optical power or focusing elements.

Regarding claim 31, Libby does NOT teach that the second radiation directing element is flat. However, it would have been obvious to make it flat because Libby clearly discloses that the purpose of the cylindrical reflector is direct the beam to the target surface, not enhance the beams' power. Therefore, it would have been obvious

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to replace the cylindrical reflector of Libby with a flat mirror, because doing so would not change the operating principles of the device and flat mirrors are more readily available and cheaper.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEFFREY LIPITZ whose telephone number is (571)270-5612. The examiner can normally be reached on Monday to Thursday, 10 am to 6:30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sam Yao can be reached on (571)272-1224. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JEFFREY B LIPITZ/
Examiner, Art Unit 3769

/Henry M. Johnson, III/
Primary Examiner, Art Unit 3769